

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
CHECK VALVE, ITEM 113A ----- SV778873-15 (1)	2/1R	113AFM04 External gas leakage (O2 bottle side at manifold connection). Seal failure.	END ITEM: Leakage of primary O2 supply to ambient. GFE INTERFACE: Depletion of the primary O2 supply would result in automatic activation of the SOP during EVA if the suit pressure drops to 3.33 psia minimum. MISSION: Terminate EVA. Loss of one EMU. During stowage, loss of tank pressure. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. TIME AVAILABLE: Minutes. TIME REQUIRED: Immediate. REDUNDANCY SCREENS: A-PASS B-PASS	A. Design - Leakage path is through a radial type silicone O-ring seal, silicone material. Seal design configuration, dimensions and rigidity of assembly provide squeeze under all load conditions. B. Test - PDA Test - The oxygen check valve is leak tested by pressurizing the bottles to 850-950 psia with a mixture of 98% N2 and 2% He. A helium mass spectrometer is then used to "sniff" for evidence of external leakage. Certification Test - Certified for a useful life of 20 years (Ref. EMUM-0083). C. Inspection - O-Seal STSV047AE007 is 100% inspected for dimensions and defects per SVHS-3431 CL I. The O-Seal groove on the fill port fitting is 100% inspected for dimensions and surface finish (32 microinch). The teflon backup ring, STSV85847, is 100% inspected for dimensions; Batch controlled per SVHS8524; and 100% inspected for burrs and defects per SVHS8522 high pressure O2 service. The fitting is trial assembled, removed, and examined for evidence of damage of particles caused by the assembly process (MIP). The O-seal is lubricated with Braycote (SVP 213) prior to final assembly. D. Failure History - None. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, High Pressure O2 Leakage. None for EET processing. F. Operational Use - Crew Response - PreEVA: When detected prior to primary O2 tank toff, trouble shoot problem, if no success, consider EMU 3 if available. EMU no go for EVA. EVA: When CWS data confirms an accelerated primary O2 use rate, terminate EVA. Training - Standard EMU training covers this failure mode. Operational Considerations - Flight rules require EVA termination when minimum primary consumables remain. EVA checklist procedures verify hardware integrity and systems operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

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113AFM04

C-PASS

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-113 PRIMARY PRESSURE CONTROL MODULE
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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